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COLFIN TTM-1016

TECHNICAL DATA
02-19-2019

COLFIN TTM-1016 TORQUE TENSION MODIFIER

COLFIN TTM-1016	is a Torque Control Modifier/Lubricant that can be used over all electroplated or mechanically plated zinc and zinc-alloy deposits.
COLFIN TTM-1016	increases the corrosion protection of the plated coating.
COLFIN TTM-1016	is formulated with a built in UV tracer to allow application confirmation.
COLFIN TTM-1016	is an easy-to-use, water-based liquid.
COLFIN TTM-1016	meets the requirements of GM GMW3044 G, PSA B15 4140, RENAULT 0171002, TS 2-21-07, John Deere JDM-F21 and JDM-F15.

OPERATING PARAMETERS

	<u>RANGE</u>	<u>OPTIMUM</u>
Concentration*:	50 - 100%	50 - 75%
pH:	8.5 - 10.0	9.0
Temperature:	70 - 90° F	80° F
Immersion Time:	30 - 60 seconds	40 seconds
Drying:	Hot air spin drying with low rpm spin motor	

NOTE: The variance in concentration will allow most users to adapt their current processing cycles to meet the 0.10 - 0.16 CoF range. Concentrations used at higher levels are typically used to account for higher spin dryer RPM's. The end-user who must work with existing equipment can vary the COLFIN TTM-1016 concentration to ensure proper coverage on the parts which will result in proper CoF readings.

TYPICAL CYCLE

1. ZINC OR ZINC /ALLOY PLATE
2. RINSE

3. COLUMBIA CHEMICAL PASSIVATE
4. RINSE - REMOVE EXCESS WATER
5. APPLY COLFIN TTM-1016
6. DRY

ANALYTICAL PROCEDURE

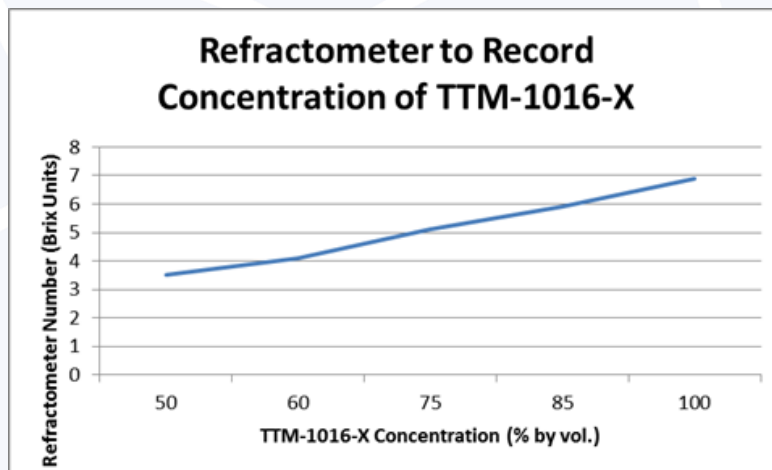
Concentration is measured with percent solids testing. Raise concentration with product additions. Add water to dilute concentrations.

PERCENT SOLIDS TESTING

1. Weigh out a small sample aluminum/glass weigh boat (Record weight).
2. Pipet 10 mLs of the working solution into the weigh boat.
3. Place weigh boat in a 125 - 130° C oven for 1.5 - 2 hours until dried completely.
4. Remove weigh boat. Cool and re-weigh the weigh boat.
5. Calculate percentage of Working Solution.

CALCULATION: (Weight of Dried Solution) – (Weight of Weigh Boat) x 200 = % Working Solution

REFRACTOMETER TESTING



50% = 3.5 60% = 4.1 75% = 5.1 85% = 5.9 100% = 6.9

HELPFUL HINTS

1. pH – adjustments are typically not required. No adjuster for lowering pH. **Do not add acids.** Adjust pH up with additions of product and/or dilute solutions of Ammonium hydroxide or caustic soda.
2. Prior to immersion dip it is highly recommended to spin any excess water off the parts by running the work through a spin dryer without heat. Parts may come out slightly wet, however, this will minimize any excess water drag-in which will dilute your working solution.

3. Drying Temperature - seek a spin dryer that will maintain a temperature of 150 - 180° F in order to ensure proper drying of the COLFIN TTM-1016 coating within a 5-minute time frame.
4. Spin Dry Rotation Speeds - seek a gradual start motor with speeds that slowly increase but have a max of 200 rpm. It is best practice to start with a cool dryer and gradually increase temperature while rotation speed is also increased.
5. In areas where temperatures are elevated, be careful to mark solution volume and add water when necessary to maintain proper concentrations due to evaporation concerns.
6. Tanks left idle for extended periods of time should be pumped into closed containers (i.e., drums or totes) until needed in the future. This should be done to avoid contamination sources and water evaporation. Prior to re-use, be sure to mix solution thoroughly prior to pumping solution back into the immersion tank.

HANDLING & STORAGE

Columbia Chemical recommends referring to the specific product Safety Data Sheets for safety, handling, and storage precautions.

NON-WARRANTY

The data contained in this bulletin is believed by Columbia Chemical Corp. to be accurate, true, and complete. Since, however, final methods of use of this product are in the hands of the customer and beyond our control, we cannot guarantee that the customer will obtain the results described in this bulletin, nor can we assume responsibility of the use of this product by the customer in any process which may infringe the patents of third parties.